CLAIMS:

1. A method of identifying a compound capable of preventing or inhibiting viral infection of a host cell, the method comprising:
   (a) preparing a target comprising the amino acid sequence of a viral fusion initiation region (FIR), wherein the FIR is from a virus having a membrane fusion protein comprising: (i) at least two extended alpha helices, (ii) a fusion peptide, and (iii) a fusion initiation region;
   (b) screening a plurality of compounds to identify at least one compound that binds to the target, a target-binding compound;
   (c) screening at least one target-binding compound to identify a target-binding compound capable of preventing or inhibiting viral infection of a host cell by a virus with a fusion protein comprising the FIR.

2. The method of claim 1 further comprising identifying a virus having a membrane fusion protein comprising: two or more alpha helices, a fusion peptide, and a fusion initiation region (FIR).

3. The method of claim 1 wherein the target is a peptide analog, a peptide derivative, or a peptide mimic.

4. The method of claim 1 wherein the compound is an antibody or functional fragment thereof.

5. The method of claim 1 wherein the virus is from a family of viruses selected from the group consisting of arenaviruses, coronaviruses, filoviruses, orthomyxoviruses, paramyxoviruses, and retroviruses.

6. The method of claim 1 wherein the virus is selected from the group consisting of Lassa Virus, Lymphocytic Choriomeningitis Virus (LCMV), Junin Virus, Machupo Virus, Guanarito Virus, Sabia Virus, Severe Acute Respiratory Syndrome (SARS) Virus, Murine Hepatitis Virus (MHV), Bovine Coronavirus, Canine Coronavirus, Feline Infectious Peritonitis Virus, Ebola Virus, Marburg Virus, Influenza A Virus, Influenza B

Virus, Influenza C Virus, Measles Virus, Mumps Virus, Canine Distemper Virus, Newcastle Disease Virus, Human Immunodeficiency Virus 1 (HIV-1), Human Immunodeficiency Virus 2 (HIV-2), Human T-cell Lymphotrophic Virus 1 (HTLV-1), Human T-cell Lymphotrophic Virus 2 (HTLV-2), Human Intracisternal A-type Particle 1 (HIAP-1), and Human Intracisternal A-type Particle 2 (HIAP-2).

7. An isolated peptide comprising:
(a) an amino acid sequence or analogous sequence thereto of a viral fusion initiation region (FIR); or
(b) a functional segment of a FIR or analogous sequence thereto from a virus belonging to one of the group of virus families consisting of arenaviruses coronaviruses, filoviruses, orthomyxoviruses, paramyxoviruses, and retroviruses, wherein the functional segment does not include HIV-1 TM CS3.

8. The peptide of claim 7 comprising an amino acid sequence or analogous sequence thereto of a viral fusion initiation region from a virus in a virus family selected from the group of virus families consisting of arenaviruses, coronaviruses, filoviruses, orthomyxoviruses, paramyxoviruses, and retroviruses.

9. The peptide of claim 7 wherein the FIR is from a virus selected from the group consisting of Lassa Virus, Lymphocytic Choriomeningitis Virus (LCMV), Junin Virus, Machupo Virus, Guanarito Virus, Sabia Virus, Severe Acute Respiratory Syndrome (SARS) Virus, Murine Hepatitis Virus (MHV), Bovine Coronavirus, Canine Coronavirus, Feline Infectious Peritonitis Virus, Ebola Virus, Marburg Virus, Influenza A Virus, Influenza B Virus, Influenza C Virus, Measles Virus, Mumps Virus, Canine Distemper Virus, Newcastle Disease Virus, Human Immunodeficiency Virus 1 (HIV-1), Human Immunodeficiency Virus 2 (HIV-2), Human T-cell Lymphotrophic Virus 1 (HTLV-1), Human T-cell Lymphotrophic Virus 2 (HTLV-2), Human Intracisternal A-type Particle 1 (HIAP-1), and Human Intracisternal A-type Particle 2 (HIAP-2) or the functional FIR fragment is from the a virus selected from the group consisting of Lassa Virus, Lymphocytic Choriomeningitis Virus (LCMV), Junin Virus, Machupo Virus, Guanarito Virus, Sabia Virus, Severe Acute Respiratory Syndrome (SARS) Virus, Murine Hepatitis

Virus (MHV), Bovine Coronavirus, Canine Coronavirus, Feline Infectious Peritonitis Virus, Ebola Virus, Marburg Virus, Influenza A Virus, Influenza B Virus, Influenza C Virus, Measles Virus, Mumps Virus, Canine Distemper Virus, Newcastle Disease Virus, Human Immunodeficiency Virus 1 (HIV-1), Human Immunodeficiency Virus 2 (HIV-2), Human T-cell Lymphotrophic Virus 1 (HTLV-1), Human T-cell Lymphotrophic Virus 2 (HTLV-2), Human Intracisternal A-type Particle 1 (HIAP-1), and Human Intracisternal A-type Particle 2 (HIAP-2).

10. The peptide of claim 7 having a sequence selected from the group consisting of SEQ ID NOs 1-7, 8-15, 22-25 and 30.

11. The peptide of claim 7 having a sequence selected from the group consisting of SEQ ID NO: 22-25 and 30.

12. The peptide of claim 7 having a sequence selected from the group consisting of SEQ ID NOs 1-7 or a functional segment of any one of SEQ ID NOs 1-7.

13. A method of treating or preventing a viral infection comprising administering to a patient a compound identified by any of the methods of claims 1 to 6.

14. A method of treating or preventing a viral infection comprising administering to a patient a peptide of any of claims 7 to 12.

15. A method of treating or preventing a viral infection comprising administering to a patient an effective amount of a composition comprising of a recombinant DNA molecule that enables or stimulates the patient to produce the peptide of any of claims 7 to 12.

16. A method of treating or preventing a viral infection comprising administering to a patient an effective amount of antibody that binds specifically to a fusion initiation region.

17. An isolated antibody identified by the method of claim 1.

18. An antibody according to claim 17 capable of inhibiting membrane fusion of a virus having membrane fusion proteins comprising at least two extended alpha-helices and a

fusion peptide, wherein these proteins comprise a fusion initiation region (FIR) requisite for cell fusion, wherein the antibody binds to amino acid sequences within the FIR.

19. An isolated nucleic acid sequence capable of encoding a polypeptide having the sequence of a viral FIR or a sequence analogous thereto from a virus belonging to family of viruses selected from the group consisting of arenaviruses, coronaviruses, filoviruses, orthomyxoviruses, paramyxoviruses, and retroviruses.

20. A method of producing an antibody comprising:

(a) providing an antigen capable of eliciting an antibody that specifically recognizes

(i) a viral fusion initiation region (FIR), or

(ii) an antigenic fragment of a FIR from a virus belonging to one of the group of virus families consisting of arenaviruses, coronaviruses, filoviruses, orthomyxoviruses, paramyxoviruses, and retroviruses, wherein the fragment does not include HIV-1 TM CS3;

(b) introducing said antigen into an animal so as to elicit an immune response thereto;

(c) collecting antibodies from said animal; and

(d) identifying those antibodies that specifically recognize a FIR or antigenic fragment thereof.

21. The method of claim 20 wherein the antigen consists of an amino acid sequence or analogous sequence thereto of a viral fusion initiation region (FIR) from a virus in a virus family selected from the group of virus families consisting of arenaviruses, coronaviruses, filoviruses, orthomyxoviruses, paramyxoviruses, and retroviruses.

22. The method of claim 20 wherein the antigen comprises a peptide analog; a peptide derivative; or a peptide mimic of a fusion initiation region (or antigenic fragment thereof).

23. The method of claim 20 wherein the antigen comprises an isolated virus or an envelope fusion protein from an isolated virus.

24. A method of identifying a viral fusion initiation region (FIR) in a viral fusion protein sequence, the method comprising;

(a) fitting the viral fusion protein sequence to the HIV transmembrane fusion protein scaffold

(b) identifying the FIR's amino terminus; and

(c) Identifying the FIR's carboxy terminus

25. The method of claim 24 wherein the viral FIR from a virus belonging to family of viruses selected from the group consisting of arenaviruses, coronaviruses, filoviruses, orthomyxoviruses, paramyxoviruses, and retroviruses.